

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL ALAN SCHMIDT, PAUL KERNER PAULING, and
JOEL ANDREW COWDEN

Appeal 2007-4168
Application 10/027,467
Technology Center 3700

Decided: December 13, 2007

Before MURRIEL E. CRAWFORD, JENNIFER D. BAHR, and
LINDA E. HORNER, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Michael Alan Schmidt et al. (Appellants) appeal under 35 U.S.C.
§ 134 from the Examiner's decision rejecting claims 14-22. Claims 1-13
and 23-34, the only other pending claims, have been withdrawn from
consideration by the Examiner as not being directed to an elected species of

the invention. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002).

THE INVENTION

Appellants' claimed invention is directed to an apparatus for cutting and threading a sheet material. The claims involved in this appeal are directed to the embodiment depicted in Figures 11-13, which includes a transfer blade 55, shown in Figure 11 in an inactive or retracted position, wherein the sheet 51 is diverted, by passage through nip rollers 53, 54, away from the intake area 52 of a processing apparatus. In Figure 12, the transfer blade 55 is shown in the extended position in which it cuts the sheet 51 and feeds it toward the intake area 52 of the processing apparatus. Independent claim 14 is illustrative of the claimed invention and reads as follows:

14. An apparatus for cutting and threading a sheet material, comprising:

a transfer blade having a retracted position and an extended position; and

a pair of nip rolls;

wherein a sheet of material passing between the retracted position and the extended position is diverted away from a processing apparatus by passing between the nip rolls; and

the movement of the transfer blade from the retracted position to the extended position directs the sheet toward the processing apparatus.

THE EVIDENCE

The Examiner relies upon the following as evidence of unpatentability:

Dambroth	3,817,467	Jun. 18, 1974
Campbell	5,024,128	Jun. 18, 1991
Lotto	5,588,644	Dec. 31, 1996
Sankaran	6,082,659	Jul. 4, 2000

THE REJECTIONS

Appellants seek review of the Examiner's rejections under 35 U.S.C. § 103(a) of claims 14-16, 20, and 22 as unpatentable over Sankaran in view of Campbell; claims 17 and 18 as unpatentable over Sankaran in view of Campbell and Lotto; and claims 19 and 21 as unpatentable over Sankaran in view of Campbell and Dambroth.

The Examiner provides reasoning in support of the rejections in the Answer (mailed March 24, 2006). Appellants present opposing arguments in the Appeal Brief (filed January 5, 2006) and Reply Brief (filed May 24, 2006).

THE ISSUES

The first issue presented in this appeal is whether Appellants demonstrate error in the Examiner's rejection of claims 14-16, 20, and 22 as unpatentable over Sankaran in view of Campbell. This issue turns on whether Sankaran discloses diversion of sheet material 30 *away from a*

processing machine and whether it would have been obvious to a person of ordinary skill in the art to replace the single roll 12 of Sankaran with a pair of nip rollers as taught by Campbell.

The next issue before us is whether Appellants demonstrate error in the Examiner's rejection of claims 17 and 18 as unpatentable over Sankaran in view of Campbell and Lotto. This issue turns on whether a person of ordinary skill in the art would have been prompted to utilize nip rollers traveling at a greater speed than the sheet feed speed to break the sheet material 30 of Sankaran by stress, either alone or in combination with the knife assembly 26.

The third issue presented for our review is whether Appellants demonstrate the Examiner erred in rejecting claims 19 and 21 as unpatentable over Sankaran in view of Campbell and Dambroth. This issue turns on whether it would have been obvious to a person of ordinary skill in the art to combine the air nozzles 23 of Dambroth with the apparatus of Sankaran.

FINDINGS OF FACT

1. Appellants describe the "processing apparatus" as "any processing apparatus known to those skilled in the art" and state that the processing apparatus "may be, for example, a roll winder" (Spec. 7:11-13).

2. Sankaran discloses an apparatus and process for transferring a metal strip from one coil to a second coil during high speed continuous operation (col. 1, ll. 11-14).
3. Sankaran uses the term “dual coiler” to describe the disclosed apparatus (col. 4, l. 31). The “dual coiler” includes two mandrels 2 and 4 each operated by independent gearing (col. 3, l. 11; col. 4, ll. 32-34).
4. Sankaran’s apparatus diverts the metal strip 30 around roll 12, away from mandrel 2, and winds the strip around mandrel 4 to form coil 32 (col. 4, ll. 56-58 and fig. 1).
5. Once Sankaran’s coil 32 is full, pivoting knife assembly 26, operated by ultra high speed impact air cylinder 18, pivots a specially contoured knife 28 into an extended position to cut the metal strip and, along with air cylinder-operated roll 36, deflects the rapidly moving metal strip 30 from its original line of travel to the new mandrel 2, about which it is wound or coiled (col. 4, ll. 22-29; col. 5, ll. 5-8 and 37-53; fig. 2). Sankaran stresses that the moving metal strip is cut, then deflected onto the empty mandrel 2 and teaches that other means to divert the strip can be used, such as rolls, deflector plates, belts, etc. (col. 5, ll. 46-48). These devices “simply need to physically deflect the rapidly moving strip from its original line of travel to the new mandrel” and must operate at sufficient speeds to be compatible with the other equipment and to deflect the strip into the winding equipment (col. 5, ll. 48-55).

6. Sankaran's mandrels 2 and 4 and roll 12 are preferably mounted on a common frame 6 (col. 4, ll. 35-36 and 51-52).
7. Sankaran's pivoting knife assembly 26 cooperates with a belt wrapper 22 to provide "a special geometrical relationship that permits the severed strip to quickly change direction and start winding around the substantially empty second mandrel 2" (col. 4, l. 65 to col. 5, l. 5). Further, Sankaran points out that "[i]t is important that the knife operate at a speed sufficient that it sever the strip without negatively impacting its movement to the second mandrel [2]" (col. 5, ll. 7-9).
8. Campbell teaches using a pair of nip rollers 80, 81 downstream of a (paper) web cutter to engage the web immediately before the knife cylinder 69 makes the cut to ensure control of the cut web by the nip rollers 80, 81 after the cut is made (col. 4, ll. 20-23).
9. Lotto discloses apparatus for winding individual, overlapping bags or other items, such as banners, signs, bumper stickers, precut tape segments, tubes of plastic or other material, or woven products (col. 1, ll. 53-56) onto a roll (col. 2, ll. 5-8). The bag material is perforated between bags upstream of the apparatus shown in Lotto (col. 5, ll. 6-8). Separator rolls 34a, 34b are urged together to create a nip that drives the web faster than the normal web speed of feed roll set 30a, 30b, thereby increasing the tension and separating the web into individual web segments or bags at the perforations (col. 5, ll. 6-18). They are then interleaved downstream and wound about a roll (col. 5, ll. 35-43). The resulting roll is a roll of bags that will not have to be

torn apart at perforations for a consumer to take one bag from a roll of bags (col. 2, ll. 44-46).

10. Dambroth teaches a device for cutting and diverting a web of material between two spools for winding (col. 2, l. 65 to col. 3, l. 29). The cutting means 20, which includes a cutting element 21, is also provided with air nozzles 23 to help feed the web around the second spool 17 (col. 3, ll. 7-21 and fig. 5).

11. Dambroth's invention relates to winding devices generally and, more particularly, to a multiple roller winding apparatus for continuously winding moving webs of textile material onto a plurality of winding spools (col. 1, ll. 9-12).

PRINCIPLES OF LAW

In interpreting claim language, we apply the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

While there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, “the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007).

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740. We must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.*

Where the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, the proposed modification would not have been obvious. *See Tec Air Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

DISCUSSION

Claims 14-16, 20, and 22

Appellants do not argue the patentability of dependent claims 15, 16, 20, and 22 separately from independent claim 14. Therefore, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we select claim 14 as the representative claim to decide the appeal of this rejection, with claims 15, 16, 20, and 22 standing or falling with claim 14.

Appellants argue that Sankaran's apparatus does not divert a sheet of material away from a processing apparatus, as recited in claim 14 (App. Br. 6; Reply Br. 2). Appellants base this argument on their characterization of Sankaran's mandrel 2, and associated belt wrapper 22, as simply one portion of a processing apparatus, which processing apparatus also includes rolls 12 and 16 and mandrel 4. *Id.* Thus, according to Appellants, Sankaran diverts the metal strip from one portion of a processing apparatus to a different portion of the same apparatus and, therefore, does not divert the strip away

from a processing apparatus (App. Br. 6-7; Reply Br. 2). In support of their characterization, Appellants point out that both mandrels 2 and 4 and roll 12 are mounted on a common frame 6 (App. Br. 7). For the following reasons, Appellants' argument is not well founded.

Sankaran clearly diverts the metal strip 30 around roll 12, away from mandrel 2, and winds the strip around mandrel 4 to form coil 32 (Fact 4). While mandrel 2 is part of what Sankaran describes as a "dual coiler" (Fact 3) that also includes, *inter alia*, the mandrel 4 and roll 12, mandrel 2 is driven by independent gearing (Fact 3) and winds the strip into a coil. Mandrel 2, by itself, is thus a "roll winder" and hence a "processing apparatus" as defined in Appellants' Specification (Fact 1). Further, while Sankaran describes mandrels 2 and 4 and roll 12 as preferably mounted on a common frame 6 (Fact 6), Sankaran does not require this. Moreover, claim 14 does not exclude the sheet being diverted to structure or apparatus that is mounted on a common frame with the "processing apparatus" from which the sheet is diverted. Nor does Appellants' Specification define "processing apparatus" as apparatus that is free-standing or mounted on its own separate frame (Fact 1). We thus conclude that Sankaran's apparatus diverts metal strip 30 (sheet material) away from a processing apparatus (mandrel 2) by passing around roll 12.

We thus turn to the question of whether it would have been obvious to a person of ordinary skill in the art to replace the roll 12 of Sankaran with a pair of nip rolls, as called for in claim 14, for diverting the strip 30 away from the mandrel 2 to the mandrel 4. Appellants argue that the Examiner

has not provided any evidence of a motivation or suggestion to modify Sankaran to replace roll 12 with a pair of nip rolls as disclosed by Campbell (App. Br. 7-8). We note, at the outset, that while the requirement of demonstrating a teaching, suggestion, or motivation (the TSM test) to combine known elements in order to show that the combination is obvious may be “a helpful insight,” it cannot be used as a rigid and mandatory formula. *KSR*, 127 S.Ct. at 1741. In any event, a suggestion to replace Sankaran’s roll 12 with a pair of nip rolls is found in Campbell’s teaching of using a pair of nip rollers 80, 81 downstream of a web cutter to engage the web immediately before the knife cylinder 69 makes the cut to ensure control of the cut web by the nip rollers 80, 81 after the cut is made (Fact 8). Specifically, a person of ordinary skill in the art would have appreciated that the use of a pair of nip rollers downstream of Sankaran’s knife assembly 26, in place of the roll 12, would improve Sankaran’s apparatus by ensuring control of the cut strip by the nip rollers after blade 28 cuts the strip 30. Moreover, there is no indication in the record that the substitution of a pair of nip rolls for the roll 12 of Sankaran would be uniquely challenging to a person of ordinary skill in the art or yield unexpected or unpredictable results. The substitution of a pair of nip rolls for the roll 12 in Sankaran’s apparatus is nothing more than the predictable use of prior art elements according to their established functions and would not appear to be beyond the technical grasp of a person of ordinary skill in the art. We thus conclude that the substitution of a pair of nip rolls for the roll 12 in Sankaran’s apparatus would have been obvious to a person of ordinary skill in the art.

For the reasons discussed above, Appellants do not demonstrate error in the Examiner's rejection of claim 14 as unpatentable over Sankaran in view of Campbell. The rejection of claim 14, and claims 15, 16, 20, and 22 depending from claim 14, is sustained.

Claims 17 and 18

The Examiner's rejection of claims 17 and 18 is grounded in part on the Examiner's determination that it would have been obvious, in view of the teachings of Lotto, to provide the nip rolls (presumably the nip rolls substituted for Sankaran's roll 12) with a speed greater than the speed of the sheet material to cut the sheet of material by the nip rolls, either without using the blade 28 (claim 17) or in combination with the blade 28 (claim 18) (Ans. 5). This determination is flawed for the following reasons.

First, the disparities between the metal strip (Fact 2) processed in Sankaran's apparatus and the perforated bag or the like material processed in Lotto (Fact 9) are such that a person of ordinary skill in the art would not have predicted that the separator roll technique of Lotto would even work with the unperforated metal strip of Sankaran. Additionally, a person of ordinary skill in the art would have been dissuaded from trying to incorporate a stress-applying separator roll technique of the type taught by Lotto into Sankaran's apparatus and risk interfering with the special geometrical relationship between the pivoting knife assembly 26 and belt wrapper 22 or hindering the knife's ability to sever the strip without negatively impacting its movement to the second mandrel 2 (Fact 7). We thus conclude that the modification proposed by the Examiner would not

have been obvious. The rejection of claims 17 and 18 as unpatentable over Sankaran in view of Campbell and Lotto is reversed.

Claims 19 and 21

Appellants argue claims 19 and 21 together. Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we select claim 19 as the representative claim to decide the appeal of this rejection, with claim 21 standing or falling with claim 19.

Claim 19 depends from claim 14 and further requires that the transfer blade comprise air jets. Sankaran discloses a diverting means, in the form of roll 36, to act in cooperation with the knife 28 to deflect the strip onto the empty mandrel, but also teaches that other means to divert the strip can also be used (Fact 5). Such diverting means simply need to physically deflect the rapidly moving strip from its original line of travel to the new mandrel and need to operate at sufficient speeds with the other equipment. *Id.* As evidenced by Dambroth, the use of air jets, ejected from air nozzles, to deflect strip or web material from its original line of travel to feed the web around a second spool was well known in the art at the time of Appellants' invention (Fact 10). To incorporate such a diverting means into Sankaran to work in cooperation with blade 28, in place of roll 36, would involve the mere substitution of one well-known diverting means for another well-known diverting means. While Dambroth does not explicitly teach use of the air nozzles for diverting metal strip material, as pointed out by Appellants (Reply Br. 3-4), Dambroth's teachings relate broadly to winding devices and are not expressly limited to the winding of textile webs (Fact

11). Appellants contend that air jets cannot be fairly expected to work as effectively on a metal strip as they might on a web of paper or plastic (Reply Br. 4) but offer no explanation or evidence to support this contention.

Arguments in a brief cannot take the place of evidence. *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974). Moreover, we observe that Dambroth discloses an application of the winding device for winding webs of textile material, not webs of paper or plastic, as Appellants' argument implies.

Air nozzles as taught by Dambroth, if suitably adapted, appear reasonably capable of physically deflecting the rapidly moving metal strip of Sankaran from its original line of travel to the empty mandrel 2, in much the same manner as the roll 36 disclosed by Sankaran, and of operating at sufficient speeds to be compatible with the other equipment of Sankaran and Appellants have not cogently explained or shown why this is not the case. Accordingly, we conclude that the substitution of air jets, emitted by air nozzles, for the roll 36 of Sankaran, to cooperate with knife 28 to deflect the strip 30 to mandrel 2 is nothing more than the predictable use of prior art elements according to their established functions and would not have been beyond the technical grasp of a person of ordinary skill in the art.

In light of the above, Appellants do not demonstrate that the Examiner erred in determining it would have been obvious to a person of ordinary skill in the art to combine the air nozzles 23 of Dambroth with the apparatus of Sankaran. The rejection of claim 19, and claim 21 standing or falling with claim 19, is sustained.

SUMMARY

The decision of the Examiner to reject claims is 14-22 is affirmed as to claims 14-16 and 19-22 and reversed as to claims 17 and 18.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

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